Chapter 3: Affected Environment

Introduction

This chapter describes the current environment that would be affected by the alternatives followed by the environmental effects of each alternative. The Background Information section lays the foundation for the environmental analysis relevant to the people who recreate on the Kenai Peninsula geographic area during the winter. The environmental analysis centers on the three issues associated with this proposal that were identified through public and agency scoping as described in Chapter 1. Disclosure of other effects, as required by NEPA, is addressed in Chapter 4.

Background Information

Winter Recreationists

The Kenai Peninsula has a wide variety of terrain for winter recreation activities. While terrain somewhat dictates the type of activity, it is not a hard and fixed criteria. For example, Nordic or cross-country skiers do not always ski close to a road. Some long-narrow, gentle valleys, such as Twentymile and Placer Creek, take cross-country skiers deep into the backcountry. While other areas close to the highway, such as Carter Lake, require a short arduous climb to reach the open, gentle terrain of the lake. While still other areas, such as the upper Snow River, require a long and strenuous climb. Likewise, snowmachine users also use a wide variety of terrain. Some like the gentle valleys to travel far into the backcountry, while others prefer the challenge of a demanding climb.

In order to minimize confusion in this analysis, it is important to establish terms and definitions for each type of winter backcountry user. These users and activities are described below to lay the foundation for the analysis of effects, discussed in the sections that follow (see Chapter 5 Glossary).

- **Non-motorized winter users:** People using non-motorized methods for access and transportation for winter activities such as skiing, snowboarding, and snowshoeing.

- **Backcountry skiers:** Includes those skiers who travel away from the highway system and seek steeper terrain to telemark, alpine ski, and snowboard.

- **Touring skiers and skate skiers:** Includes people who utilize skate skis and traditional Nordic skis, and who are away from the highway system but seek flatter terrain (i.e. valley bottoms, trails, etc).

- **Winter motorized users:** People using motorized equipment for access and transport for winter activities such as heli-skiing and snowmachining.

- **Heli-skiers:** Heli-skiers are delivered to drop-off points on ridges or peaks by helicopter, gathered at pickup points after skiing down, and are ferried back to

drop-off points. Most use alpine equipment, but telemark, touring, and snowboard gear is also used.

- **Snowmachine users:** Includes all people using over-the-snow machines. Since 1996, Alaska has seen nearly a three-fold increase in the number of registered snowmachines. In 2002, Anchorage had 12,644 registered snowmachines and the Kenai Borough, 3,989. Statewide, there were over 40,000 registered snowmachines (Alaska Division of Motor Vehicles 2003).

The attitudes and feelings about helicopter noise and disruption of the serenity of the area varies widely. Some winter recreationists demand that the natural quiet of the area be maintained with no helicopter or snowmachine use. Others accept the activity as long as the noise does not affect them or the helicopters operate away from the road system. Still others fully support heli-skiing because of the opportunity to ski the backcountry and the economic benefit it provides to the local community. Some residents find helicopter noise to be one of the most annoying noises there is, while others accept it and do not think it is obtrusive.

Duration of heli-skiing activities

Guided helicopter skiing on the Kenai Peninsula geographic area was first approved in 1997. For the 2000 season, a one-year permit was issued for five units totaling 111,200 acres with a maximum of 800 client days of skiing. Similar permits were issued for the 2001 and 2002 seasons. In 2003, the use area was expanded to seven units totaling 159,000 acres with a maximum use of 1,200 client days.

CPG's 2003 permit had a 76-day (2/3 – 4/20) operating season with an upper limit of 1,200 client days of use. Due to weather, snow conditions, and number of clients, in 2003 CPG flew heli-skiers on 35 days and used 531 of their client days. The most used unit, Glacier-Winner, was used on 21 days. The least used unit, East Twentymile, was only used 2 days. One unit, North Twentymile, was not used at all. (see Appendix G-1 & 2 for detailed information on CPG's use for 2001 through 2003.) There is no way to assess how each heli-skiing unit will be used by CPG in the coming years if they are issued a permit. Therefore, the impact analysis assumes that each area could be used to the maximum allowable days.

Communities Affected

Listed are the principle areas where helicopter activities could be heard from each of the communities. (see the Impacts to Communities section in this Chapter for a detailed discussion of these effects.) The following communities could be affected by the helicopter skiing proposal:

Community	Areas Affected by
Cooper Landing	Mt. Ascension unit
Girdwood	Girdwood Airstrip staging area
	Glacier-Winner unit
	Bench Complex travel corridor
Hope	None
Moose Pass	Mile 33.2 Gravel Pit staging area
	Mt. Ascension unit

	Moose Creek travel corridor
Seward	Flights to and from Airport
Sunrise	West Seattle Creek unit

Other On-going Projects

Any action that results in more people in the backcountry or more disturbances of natural habitats in or near the permit area has the potential to cause cumulative impacts to wildlife, winter recreationists, and local residents. The following on-going projects may increase winter recreational use in the project area:

Iditarod National Historic Trail Comprehensive Management Plan

The primary goal of this plan is to promote the preservation, enjoyment, use, and appreciation of the Iditarod National Historic Trail (INHT). Since the INHT designation as a National Historic Trail in 1978 and the development of the *INHT Seward to Nome Route Comprehensive Management Plan* in 1986, there has been subsequent development of a variety of agency, community and advocate plans and activities associated with the INHT.

The Chugach National Forest began work on the environmental analysis in June of 2002 for the preservation, development and management of the INHT between Seward and Girdwood, Alaska. During the past year, the Forest Service has completed extensive field reconnaissance along existing and potential trail locations, as well as survey and inventory of heritage resources. As a result, the Forest Service has verified and identified potential locations for the establishment of a continuous trail connection between Seward and Girdwood. In addition, many associated opportunities for the preservation and interpretation of INHT- heritage resources, and for the development of trailhead and recreation facilities have also been identified.

Portions of the preferred alternative of the proposed INHT cross through Glacier/Winner Creek units and through the southwest corner of West Twentymile unit. Winter use management is not proposed for these sections of the trail. The trail would also cross through the Bench Peak unit along Johnson Pass Trail from Trail Lake to Granite Creek and travel along Lost Lake Trail/Primrose Trail that is adjacent to the Mt. Ascension unit.

The Forest Service has released an Environmental Assessment for public comment but a Decision Notice and Finding of No Significant Impact has not been issued.

Nordic Ski Train Permit

The Anchorage Nordic Ski Club has received a permit from the Forest Service in past years to have several railroad cars of skiers transported up to Grandview and be dropped off for a day of skiing along Trail Creek and up to several of the glaciers near the railroad. The permit was typically issued for several weekends in March of each year. At this time, the Ski Club has submitted a proposal for renewal of a multi-year authorization. Although a permit has not been issued as of this date, it is likely that one will be issued with a start date of winter 2004.

Outfitter/Guide Use

There are currently three outfitter/guide companies, other than Chugach Powder Guides,

that are permitted to use associated trails and areas within or adjacent to the project area. These companies are Alaska Snow Safaris, Glacier City Snowmobile Tours, and Wilkinson Expeditions. The first two companies are permitted to guide snowmachine trips in the Turnagain Pass area, Placer and Twenty Mile drainages, as well as Johnson Pass Trail area from the north side. Alaska Snow Safaris has a total of 575 client days, and Glacier City Snowmobile Tours has a total of 300 client days. Wilkinson Expeditions is permitted for skiing and camping in Placer River Valley, Johnson Pass from the south side, Russian Lakes Trail, and Ptarmigan Creek Trail. Wilkinson Expeditions is permitted for 15 or less client days at each area.

Paradise Valley Hut-to-Hut Proposal

The Alaska Mountain and Wilderness Huts Association (AMWHA) submitted a proposal in June 2002 for a system of multi-party backcountry huts that are open to the general public and linked by foot trail through the backcountry of Ptarmigan Lake and through the North Fork of Snow River drainages. The primary season of use would be summer, but the proposal includes low levels of winter use. The proposed heli-skiing activities would overlap with this proposal in the Ptarmigan and Snow River heli-skiing use areas. The heli-skiing proposal has generated concern from the Huts Association for the noise intrusion in the areas immediately adjacent to the proposed hut locations. Spring skiers using the huts in March and April would overlap with the proposed heli-skiing. The Huts Association may also expand their proposal to include the possibility of building a hut-to-hut system within the Twentymile River drainage, and/or the Placer River drainage. The Forest Service as of the date of this report has not formally accepted the AWMHA proposal as an application of use.

Alaska Mountain Yurt Proposal

There is a proposal to build a yurt structure (a semi-permanent tent) near Cooper Lake for guided recreation use primarily in the winter but could also serve summer recreationist. The proposal includes establishing a yurt on decking for paying clients for overnight accommodations during their guided recreation trips near Cooper Lake. The heli-skiing proposal overlaps with the yurt proposal in the Mt. Ascension area. Since the primary use season is winter and their target is backcountry skiers, there could be a conflict between the two proposals. The Forest Service, as of this date, has not formally accepted this proposal as an application of use.

Recreation Facility Development within the project area

New public use facilities are being discussed for development in several of the proposed heli-skiing units. These include three new cabins in the Bench Peak unit and one new cabin and a new trail adjacent to the Mt. Ascension unit. Additional cabins could increase the amount of use by backcountry skiers between Moose Pass and Portage Valley areas. Two other recreation facilities under consideration include a ski trail system in the Grayling/Meridian Lake area and a whistlestop campground adjacent to the Railroad. These proposed facilities have not yet been analyzed or added to the Forest program of work (Capital Improvement Process).

Wildlife

Wildlife in this EIS is address at two levels: (1) general wildlife and (2) individual species

including: (a) federally listed threatened and endangered species and Forest Service Region 10 sensitive species, (b) Forest Service management indicator species, (c) species of special interest, and (d) other species of concern that may be affected by this proposal. Much of this information is taken from the *Wildlife Specialist Report* prepared for this project by Forest Service Wildlife Biologists Michael I. Goldstein, Mary Ann Benoit, William Shuster and Aaron J. Poe (USDA-Forest Service 2003a).

General Wildlife

Current Situation
The Chugach National Forest provides habitat for an estimated 232 vertebrate species including 51 mammals, 179 birds, and 2 amphibians. There are 15 orders and 37 families of birds and 6 orders of 15 families of mammals. These species contribute to the overall health of the Forest and provide Forest users with a full range of opportunities that include consumptive and non-consumptive activities (USDA Forest Service 2002b). Many of these species are found on the Kenai Peninsula geographic area.

Individual Species

Current Situation
Threatened and endangered species and Forest Service Region 10 sensitive species (TES), Forest Service management indicator species (MIS), species of special interest (SSI) are defined in the Revised Forest Plan (USDA-Forest Service 2002a). These species and other species of concern (SOC) are listed in Table 3-1. Species that are shaded do not have occupied habitat within the proposed heli-skiing areas or are not winter residents and, therefore, will not be further evaluated.

Threatened, Endangered and Sensitive Species
No threatened, endangered or sensitive species occur within the permit area during the permit-operating season.

Management Indicator Species
Management Indicator Species that may be present during the heli-skiing operating season are the brown bear, moose, and mountain goat.

Table 3-1 Wildlife Species

Species	TES	MIS	SSI	SOC
Dusky Canada Goose	X			
Humpback Whale (Endangered)	X			
Montague Island Tundra Vole	X			
Osprey	X			
Peal's Peregrine Falcon	X			
Steller's Eider (Threatened)	X			
Steller Sea Lion (Endangered)	X			
Trumpeter Swan	X			
Black Oystercatcher		X		
Brown Bear		X		
Moose		X		
Mountain Goat		X		
Bald Eagle			X	
Canada Lynx			X	
Gray Wolf			X	
Marbled Murrelet			X	
Montague Island Hoary Marmot			X	
Northern Goshawk			X	
River Otter			X	
Sitka Black-tailed Deer			X	
Townsend's Warbler			X	
Wolverine			X	
Dall's Sheep				X
Migratory Birds				X

Brown Bear--The Kenai Brown Bear has been the subject of study for over 20 years culminating in *A Conservation Assessment for the Kenai Peninsula Brown Bear* (Interagency Brown Bear Study Team 2001). The number of brown bears on the Kenai Peninsula is estimated at 280, but the accuracy of this number is uncertain. New genetic mark-recapture techniques are being developed which will provide a move accurate estimate of the population. A recent genetic study found that brown bears (1) appeared to be one large panmictic population (random mating within a breeding population), with no genetic subdivisions, (2) showed neither significant evidence of inbreeding nor any signature of a significant historic bottleneck, and (3) were genetically stable (Jackson et al. in preparation). Barriers such as mountains and glaciers on the Kenai Peninsula, as well as the isthmus at Turnagain Arm, seemed insignificant in reducing gene flow.

Habitat modification and human activities such as road construction, residential and commercial developments, mining, timber harvest, and outdoor recreation has reduced the habitat of the brown bear on the Kenai Peninsula (Suring et al. 1998). Habitat modification and human activities have increased the number of brown bear killed in defense of life and property (DLP) (Suring and Del Frate 2002). During the summer, bears concentrate along low-elevation valley bottoms and coastal streams. Several

encounters have occurred resulting in injury to humans and injury or death to bears. For the 2003 calendar year, as of November 1, 2003, 8 female brown bear units have been killed in DLP and the fall hunting season has been cancelled by the ADFG.

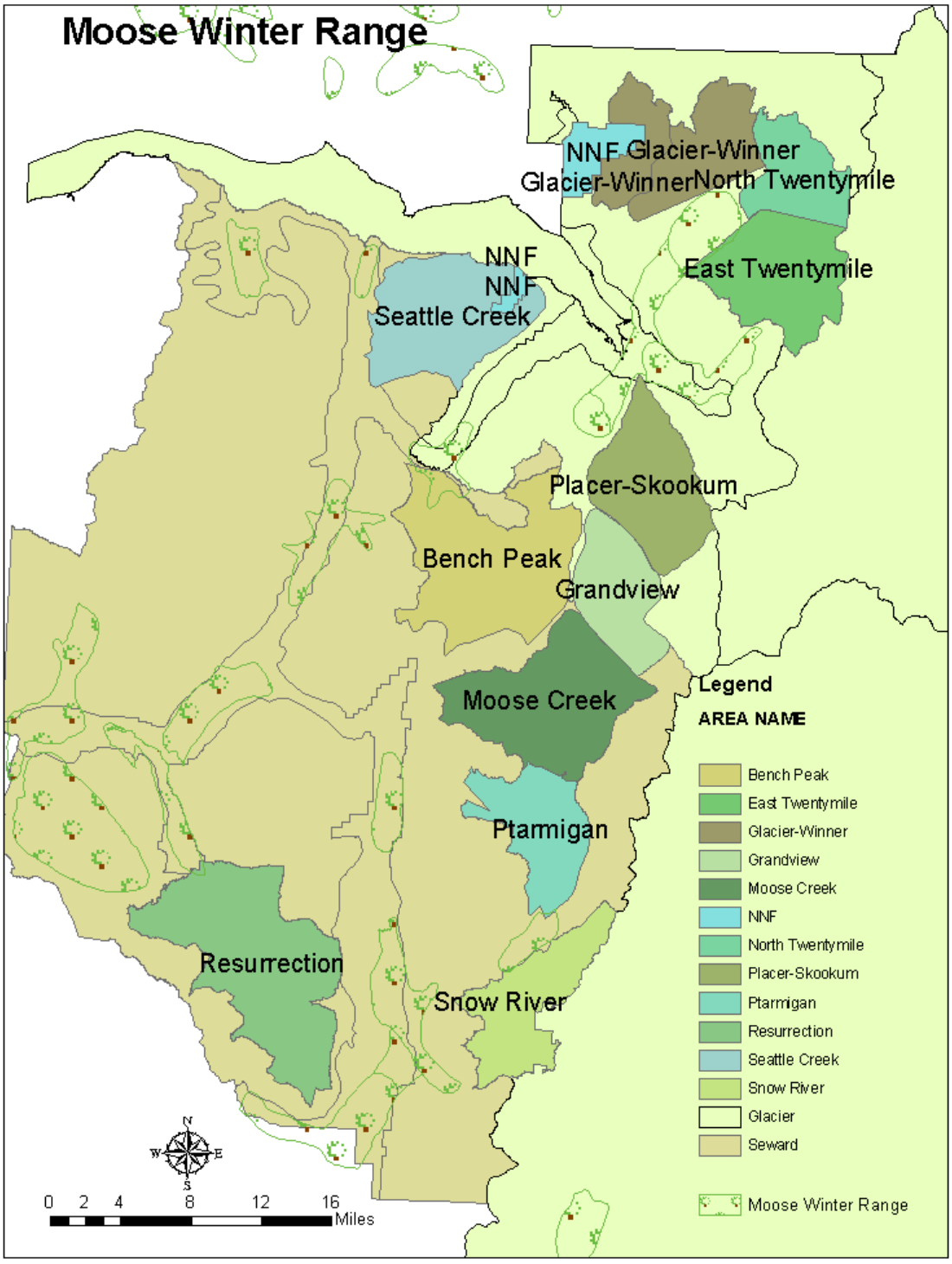
In the winter, brown bears den throughout the Kenai Peninsula. Bears use a variety of habitats for denning but have a tendency to den on steep slopes with stable snow conditions. Emergence typically occurs in mid-April. Bears are prone to starvation during den emergence and require undisturbed habitat in order to acquire adequate forage (Olliff et al. 1999). To help identify areas where backcountry recreation and brown bear dens might conflict, the Forest Service is developing a model to predict brown bear den areas on the Kenai Peninsula.

Studies on the effects of aircraft, including fixed-wing planes and helicopter, report both behavioral and physiological responses of brown bears to overflights (Harding and Nagle 1980, Scallenberg 1980, Reynolds et al. 1986, McLellan and Shackleton 1989, and McLallan 1990). Overt behavior responses, such as running and hiding, typically occur when bears are active. The literature presents differing opinions on whether or not bears will habituate to noise disturbances, such as helicopter overflights (Harding and Nagy 1980, McLellan 1990). In general, habituation is less likely to occur when the disturbance is unpredictable and irregular. Responses of bears in dens are harder to measure, and few studies of aircraft disturbances over dens exist (Reynold et al. 1986). Overflights during radio telemetry studies have caused increased movement in the den (Shoen et al. 1987, Smith and Van Daele 1990), but there is no threshold for overflights causing den emergence or relocation.

Moose--Moose are primarily associated with early to mid-succession habitat and riparian areas (USDA-Forest Service 2002b). On the Kenai Peninsula, limitations on population growth include winter habitat, predation, hunting, and mortality from vehicular collisions (Lottsfeld-Frost 2000). The location of feeding and thermal cover is important for winter survival (Renecker and Schwartz 1998). Moose are typically concentrated at lower elevations during the winter; wintering grounds are generally forested habitat below tree line (see Map 3-1).

Little information exists on the effect of helicopter over-flights on moose. Moose in the summer were more affected by encounters with humans on foot than by encounters with vehicles including helicopters and airplanes. Disturbance in the winter may be more important due to higher energy costs of movement in the snow and lower quality of available forage (Anderson et al. 1996).

Map 3-1


Moose Winter Range
NNF Glacier-Winner
Glacier-WinnerNorth Twentymile
East Twentymile
NNF
NNF
Seattle Creek
Placer-Skookum
Bench Peak
Grandview
Moose Creek
Ptarmigan
Resurrection
Snow River
Legend
AREA NAME
Bench Peak
East Twentymile
Glacier-Winner
Grandview
Moose Creek
NNF
North Twentymile
Placer-Skookum
Ptarmigan
Resurrection
Seattle Creek
Snow River
Glacier
Seward
Moose Winter Range
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0 2 4 8 12 16
Miles

Mountain Goat--Mountain goats use cliffs, alpine, and sub-alpine habitats. They are generally found near steep cliffs with slopes over 50 degrees. Goats are most abundant in the highly glaciated costal mountains and least abundant along the relative dry west slopes of the Kenai Mountain range where they coexist with the Dall's sheep (Del Frate 1994). Cliffs and steep broken ground are used as habitat to escape from predators. The need for escape terrain in close proximity to food is a critical factor in habitat selection. During the winter, mountain goats restrict their activities to south facing slopes, steep cliffs, and windswept alpine ridges where the snow accumulation is less than in other portions of their range (Fox 1983, Chadwick 1983). Winter habitat may limit goat populations in South-central Alaska (Surling et al. 1992).

Winter surveys were conducted for mountain goats on the Kenai Peninsula and upper Turnagain Arm between late February and mid-April, 2000-2002. Summer surveys were conducted during August and September 2000-2002 in the central Kenai Peninsula, immediately adjacent to or overlapping areas surveyed during the winter. From this information, a winter mountain goat habitat model was created. Fifty-seven no-fly zones were developed based on winter goat locations and modeled winter habitat; and buffered by at least 1,500 feet to allow for goat/helicopter separation. Map 3-2 shows mountain goat winter habitat modeled from goat surveys and track collections during the winters of 2000-2003. No-fly zone are shown in Appendix C. This model will be updated as additional survey information is collected.

Mountain goats respond to helicopter and aircraft overflights based on type of aircraft, distance from goats, angle of approach, topography and habitat (Foster and Rahs 1983, Joslin 1986, Coté 1996, USDA-Forest Service 2003b). Behavior responses included alert interruptions from rest, increased foraging, and escape behavior. Closer and more direct flight paths elicited the strongest responses. It is unknown how these behavioral responses correlate with physiological stress or population viability.

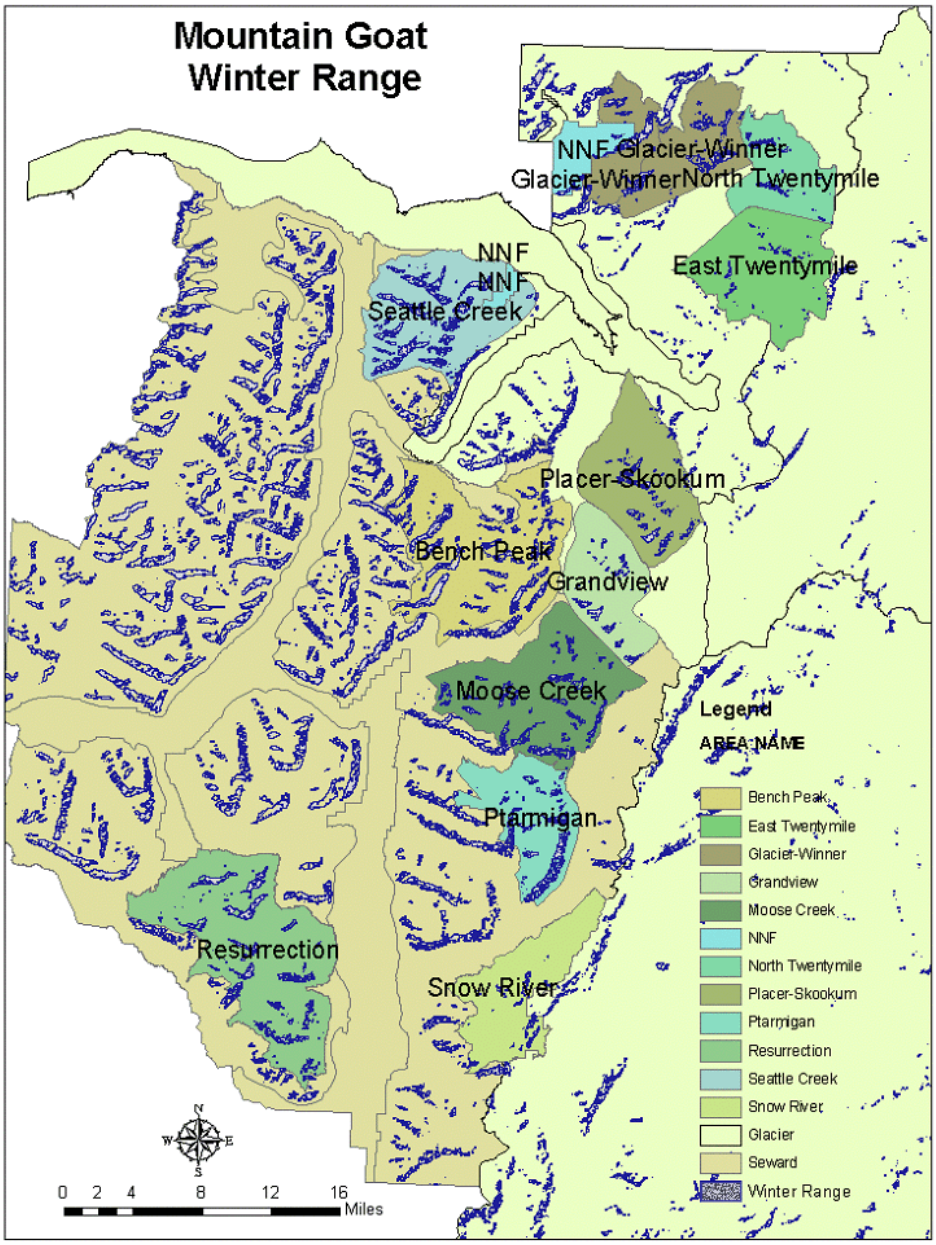
Contrary evidence exists as to whether or not goats habituate to aircraft overflights. Goats in southeast Alaska were exposed to repeated flight-seeing overflight and reacted less than goats with no prior history to aircraft (USDA-Forest Service 2003b). However, goats in Canada exposed to helicopters with sling loads did not habituate (Foster and Rahs 1983, Coté 1996)

Preliminary data analysis from the Chugach National Forest found that over 90 percent of all disturbance reactions were short term in nature (less than two minutes) and that experimental helicopter overflights did not appear to affect the amount of time the goats spent in maintenance behavior (USDA-Forest Service 2003b).

Winter surveys were conducted for mountain goats on the Kenai Peninsula geographic area between late February and mid-April 2000-2003. Summer surveys were conducted during August and September 2000-2002 in the central Kenai Peninsula immediately adjacent to or overlapping areas surveyed during the winter. From this information, a winter mountain goat habitat model was created. Fifty-seven no-fly zones were developed based on winter goat locations and modeled winter habitat; and buffered by at least 1,500 feet to allow for goat/helicopter separation. Figure 3-2 shows mountain goat winter range modeled from goat survey and track collections during the winters of

2002-2003. No-fly zones are shown in Appendix C. This model will be updated as additional survey information is collected.

Map 3-2

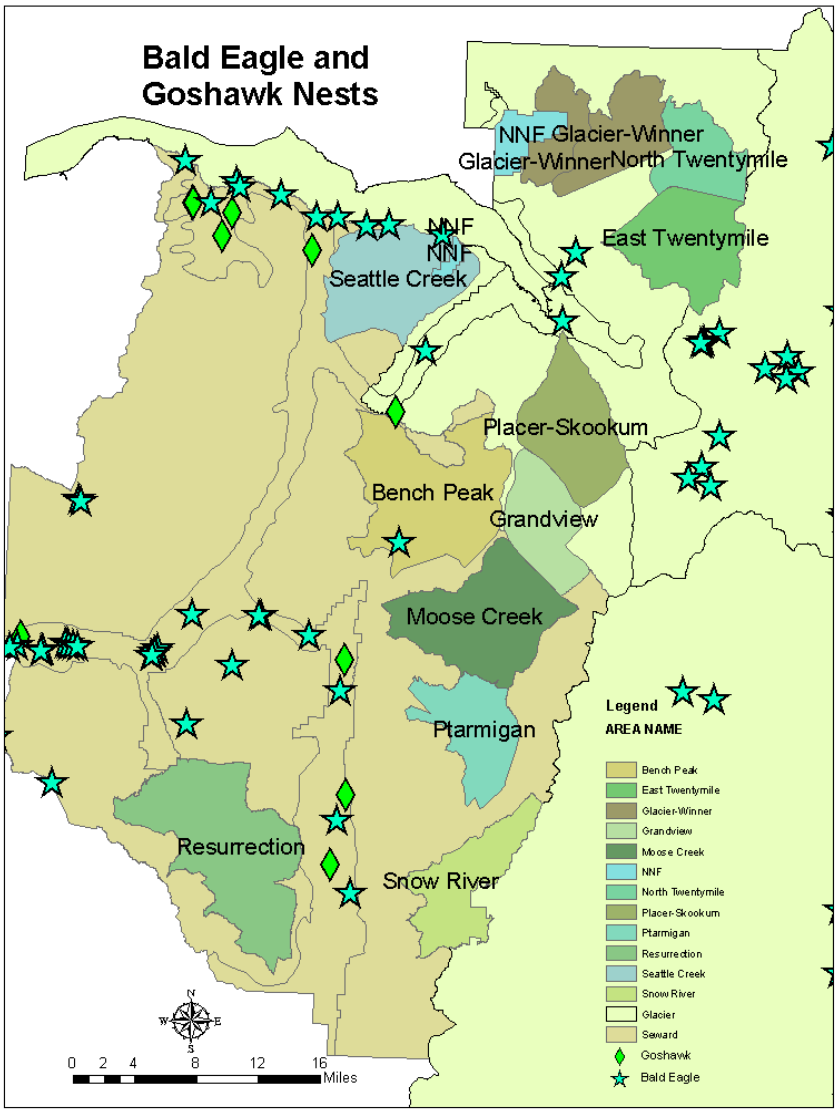


Species of Special Interest

Species of Special Interest that may use the area during the heli-skiing operating season include the bald eagle, Canada lynx, gray wolf, northern goshawk, river otter, marbled murrelet and wolverine.

Bald Eagle--Bald eagles in Southcentral Alaska generally nest in old cottonwood trees near water and use the same nest each year (Daum 1994). The nesting season is generally from March 1 to August 31 (USDA-Forest Service 2002b). Bald eagle protection standards are outlined in an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service, and include a 330-foot limited use zone around nest locations (U.S. Fish and Wildlife Service 2002). Bald eagle nests occur within Seattle Creek, Bench Peak, and Twentymile, near Mt. Ascension and along the Kenai River and Kenai Lake. Identified nests have been mapped (see Map 3-3).

Map 3-3



Canada Lynx--Lynx are most likely found within the project area in relative low numbers. Lynx use a variety of habitat, including spruce and hardwood forest. They require a mosaic of conditions, including early successional forests for hunting and mature forests for denning (Koehler and Brittell 1990). The most current research suggests that lynx utilize large blocks of connected forest habitat, generally dominated by spruce/fir, white fir, Douglas fir, and aspen, with a mosaic of age classes (Seidel et al. 1998). Lynx seem to prefer areas of low topographic relief (Apps 2000).

In Alaska, lynx habitat occurs where fires or other factors create and maintain a mixture of vegetation types with an abundance of early successional growth. Lynx tend to use elevations ranging from 300-1,075 meters (approximately 1,000-4,000 feet), and seldom use unforested alpine slopes. Lynx habitat closely matches that of the snowshoe hare, its primary prey species. Mating occurs in March and early April and kittens are born 63 days later under a natural shelter such as a windfall spruce or a rock ledge (Berrie 1973, Berrie et al. 1994).

Gray Wolf--Wolves are found in the project area in low numbers. Wolves are habitat generalists. Wolves prey mainly on ungulates year-round (Mech 1970). During the winter wolves are found at lower elevations in forested or woodland areas (Stephenson 1994). Wolves are highly social animals and usually live in packs that include parents and pups of the year. Pack size usually ranges from 2 to 12 animals. In Alaska, the territory of a pack varies from 300 to 1,000 square miles of habitat with an average of about 600 square miles. Wolves normally breed in February and March and the pups are born in May or early June (Stephenson 1994). Wolves have been documented as sometimes abandoning a den and moving pups to an alternative den if disturbed by humans (Mech et al. 1991). There are approximately 10-11 wolf packs on the Seward Ranger District (Ted Spraker, personal communication) and another 2 packs range across the Placer Valley, Turnagain Arm, and Portage Valley on the Glacier Ranger District (Cliff Fox, personal communication).

Northern Goshawk--The northern goshawk is an uncommon forest raptor that feeds on small and medium sized mammals and birds that they capture on the ground, in trees, or in the air. The amount and location of feeding and nesting habitat appears to limit population viability in Southeast Alaska (Iverson et al. 1996). The nesting-breeding season is March through July. Goshawks are year-round residents of the Chugach National Forest (USDA- Forest Service 1984). The majority of goshawk nests on the Seward Ranger District are in old growth hemlock-spruce forest characterized by a closed canopy, large diameter, gap regeneration (small patches, usually less than one acre, where the overstory trees have been damaged, such as from wind, and there is dense reproduction), and an open understory (USDA-Forest Service, Seward District Goshawk files). There are no known goshawk nests within the proposed heli-skiing units (see Map 3-3). Goshawk nests are located in the vicinity of the proposed staging area at Mile 12.4 near Meridian and Lost Lake.

Marbled Murrelet--Marbled murrelets are medium sized seabirds that inhabit costal waters, inland freshwater lakes, and nest in inland areas of old-growth conifer forest on the ground (Carter and Sealy 1988). Except for the fall period when they are molting, flightless and stay on the ocean, murrelets are known to fly to tree stands. Murrelets

may use forested area and costal water under the flight paths of helicopters during the permit period, but the spatial and temporal overlap is low to negative.

River Otter--River otter are associated with coastal and fresh water environments and the immediately adjacent (within 100-500 feet) upland habitats (Toweill and Taber 1982, USDA-Forest Service 2002b). Beach characteristics affect the availability of food and cover, and adjacent uplands vegetation also provides cover. Otters travel several miles overland between bodies of water and develop well-defined trails that are used year after year (USDA-Forest Service 2002b). River otters breed in late winter or early spring. Young are born from November to May with a peak in March and April (Toweill and Taber 1982).

Townsend's Warbler-- The Townsend's warbler is a neo-tropical migrant that breeds in Alaska. They are largely restricted to mature forest with tall coniferous trees, and are abundant in large undisturbed tracks of continuous forest, but will also use forest in late successional stages (Matsuoka et al. 1997). Townsend's warblers may be present, but are uncommon in the spring during the end of the permitted helicopter skiing season.

Wolverine--The wolverine has been characterized as one of North America's most rare mammals and least known large carnivores. Very few studies have been done on the wolverine in North America. Wolverines live in montane forest, tundra, and taiga (Wilson 1982). The most apparent characteristic of the wolverine is its isolation from the presence of humans (Wolverine Foundation 2001). Wolverines are primarily scavengers and forage on carcasses of ungulates such as moose, mountain goats, and Dall's sheep. They also hunt for snowshoe hares, marmots, mice, voles, ground squirrels, and grouse but will also eat fruits, berries, and insects when other prey is unavailable (Hash 1987).

Wolverines have low reproductive rates, low population densities, and large home ranges (Hornoker and Hash 1981, Olliff et al. 1999). Adult males in South-central Alaska have a home range of 535 square kilometer (approximately 200 square miles). Adult females have a home range of 105 square kilometers (approximately 40 square miles) (Whitman et al. 1986). Adult male home ranges generally overlap several female home ranges.

Wolverines are normally active during the winter; they rear kits in dens, and naturally move between multiple den sites (Howell 1999). Kits are born from January through April with most females giving birth before late March (Pallianinen 1968). Because the female regularly move maternal dens, natal and maternal dens are found across a variety of habitats.

Wolverine surveys were conducted in February 1992 as part of a cooperative project with the ADFG. Surveys of the Kenai Peninsula showed concentrations of wolverine along Six Mile Creek, Canyon Creek, and Resurrection Creek. Wolverine surveys will again be conducted beginning in the winter of 2003-2004 by an interagency team (ADFG, National Park Service, and Forest Service).

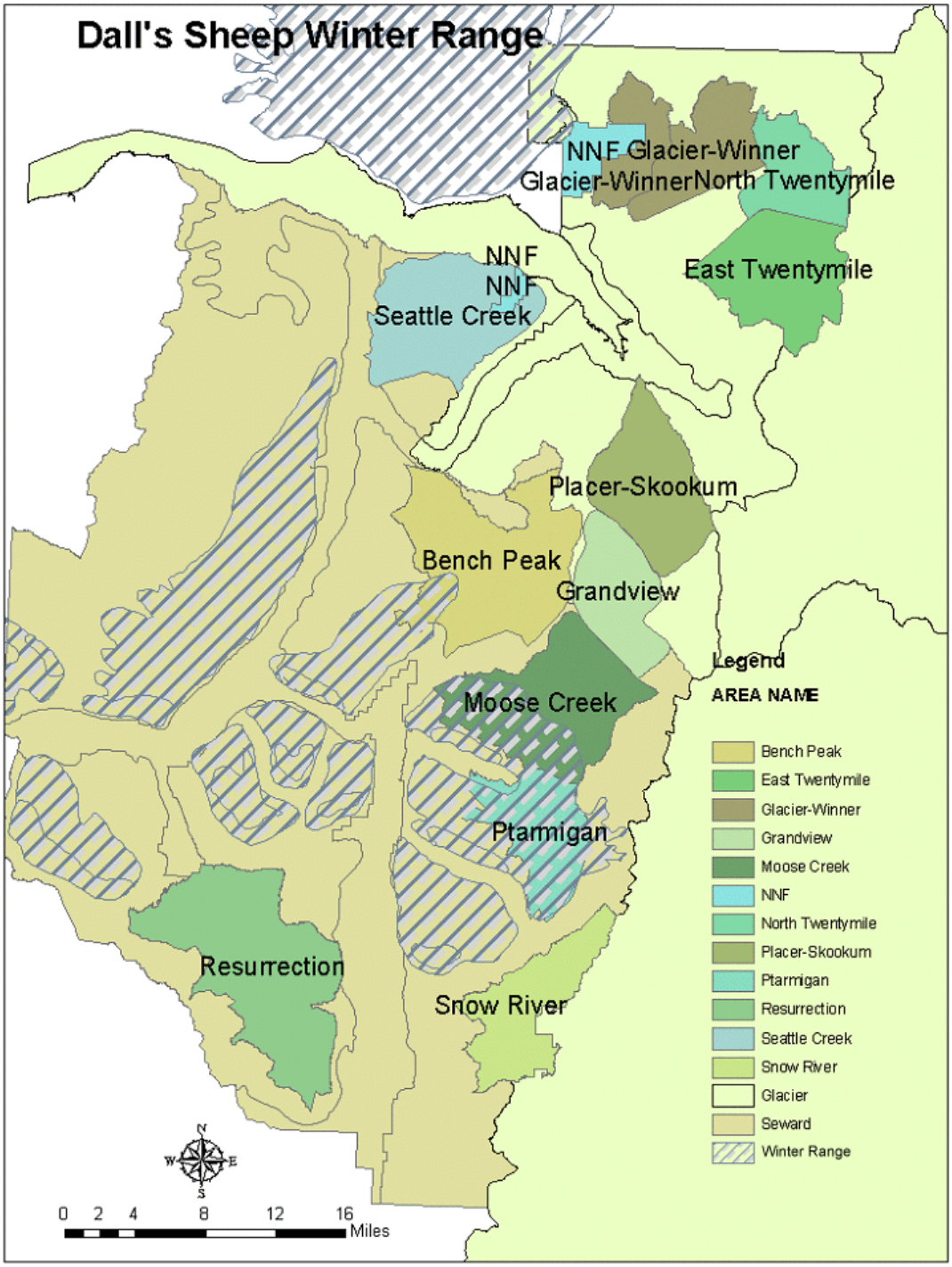
Other Species of Concern

Other Species of Concern are species or group of species that may be affected by the project as identified through public scoping and the interdisciplinary team process. These included the Dall's sheep and migratory birds.

Dall's Sheep--Dall's sheep inhabit the mountain ranges of Alaska on open alpine ridges, meadows, and steep slopes with rugged terrain. Dall's sheep are known to be disturbed by helicopter overflights (Stockwell et al. 1991, Frid 2003). Winter habitat on the Kenai Peninsula was identified using the Alaska Habitat Management Guide for Dall's Sheep (see Map 3-4). Winter Dall's sheep habitat is found within the Moose Creek, Ptarmigan, and a small part of Bench Peak West areas. Specific overflight guidelines for Dall's sheep follow those for mountain goat (USDA-Forest Service 2002b). No-fly zones created for mountain goats within these three areas overlap with concentrations of Dall's sheep according to observations made by the ADFG (L. Nichols [retired], personal communication) and summer survey data (USDA-Forest Service, unpublished data).

Migratory Birds--Federal agencies are directed through an Executive Order to protect migratory birds. The Revised Forest Plan lists some migratory birds as threatened, endangered, sensitive, or species of special interest. These lists were compared with the *Birds of the Chugach National Forest* (USDA-Forest Service 1984). Migratory birds of concern that may occur in the project area in March and April during the heli-skiing operating season are listed in the *Wildlife Specialist Report* (USDA-Forest Service 2003a).

Map 3-4


Dall's Sheep Winter Range
NNF Glacier-Winner
Glacier-WinnerNorth Twentymile
East Twentymile
NNF
NNF
Seattle Creek
Placer-Skookum
Bench Peak
Grandview
Moose Creek
Ptarmigan
Resurrection
Snow River
Legend
AREA NAME
Bench Peak
East Twentymile
Glacier-Winner
Grandview
Moose Creek
NNF
North Twentymile
Placer-Skookum
Ptarmigan
Resurrection
Seattle Creek
Snow River
Glacier
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Winter Range
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0 2 4 8 12 16
Miles

Recreation

While many forms of winter recreational use have increased in recent years (e.g., ski touring, skate skiing, backcountry skiing, snowmachine use), non-motorized recreationists expressed the most concern regarding this proposal. Some backcountry skiers said that the presence of the helicopter, primarily as a source of noise in an otherwise pristine area, detracts from their recreational experience. The conflict is also over competition for untracked snow. Some feel that the sudden presence of heli-skiers in areas that backcountry skiers have expended considerable effort to reach is unfair, especially when it involves terrain accessible for day tours. Concerns for the safety of backcountry skiers and snowmachine users down slope from heli-ski groups were also expressed. Much of this information is taken from the *Recreation Resource Report* prepared for this project by Teresa Paquet, Glacier Ranger District and Karen Kromrey, Seward Ranger District (USDA-Forest Service 2003c).

Current Situation

A majority of the winter recreational use occurs along travel corridors in the valley bottoms. Some of the more heavily traveled areas for both snowmachine and skiing include: Placer drainage, Turnagain Pass area, Twentymile drainage, Seattle Creek drainage, Johnson Pass Trail north and south, Lynx Creek, Bench Creek, Center Creek, Lost Lake Trail/Primrose Trail to Cooper Lake, South Fork of Snow River, Trail Creek to Snow Glacier and into the Paradise Lakes area. Backcountry skiers who are out for a day trip generally do not travel more than 3 – 5 miles from the highway (see Maps 3-5 A and B).

The Glacier Ranger District has recorded the number of vehicles at various winter recreation access points on the district. The Seward Ranger District has done the same, but has recorded these vehicle counts into the approximate number of people who occupied the vehicles. Both districts distinguished between the types of user (non-motorized vs. motorized). Appendix D shows a summary of the vehicle/people counts for the winter access points on both districts. There are limitations on the accuracy of this data. The survey times were not chosen with statistical accuracy nor were survey sites surveyed every weekend. The data simply indicates where people started their recreation experience, an approximate split between non-motorized and motorized use, and an approximate number of people using different access points. The Seward Ranger District and the Glacier Ranger District will continue to monitor winter use to establish numbers of users, type of use, and location of use. User's satisfaction with their recreation experience will also be included in the information collected.

Replace with color Map 3-5 A

Back of map 3-5 A

Replace with color Map 3-5 B

Back of map 3-5 B

Chugach Powder Guide Past Use

Guided helicopter skiing on the Kenai Peninsula geographic area was first permitted in 1997 to Chugach Powder Guides. Table 3-2 shows the number of client days and various areas under permit for the past seven years.

Table 3-2 Chugach Powder Guides Permitted Use 1997-2003

Year	Number of Client Days Permitted	Number of Client days Used	Areas Approved for Heli-skiing	
1997	Not specified in permit	231	Glacier/Winner Creek West Twenty Mile North Twenty Mile East Twenty Mile	Placer/Skookum Bench Peak Grandview Moose Creek
1998	Not specified in permit	285	Glacier/Winner Creek West Twenty Mile North Twenty Mile East Twenty Mile	Placer/Skookum Bench Peak Grandview Moose Creek
1999	1200	542	Glacier/Winner Creek East Twenty Mile (Bear Valley East only) Placer/Skookum Bench Peak Grandview	
2000	800 Client Days	641	Glacier/Winner Creek East Twenty Mile (Bear Valley East only) Placer/Skookum Bench Peak Grandview	
2001	800 Client Days	886	Glacier/Winner Creek East Twenty Mile (Bear Valley East only) Placer/Skookum Bench Peak Grandview	
2002	800 Client Days	1029	Glacier/Winner Creek East Twenty Mile (Bear Valley East only) Placer/Skookum Bench Peak Grandview	
2003	1200 Client Days	531	Glacier/Winner Creek West Twenty Mile North Twenty Mile East Twenty Mile	Placer/Skookum Bench Peak Grandview

Use data from the past seven years was analyzed to determine frequency of use in various units. The years 2001-2003 have the most detailed use reports and therefore these years were scrutinized thoroughly. Table 3-3 shows the total number of days CPG guided heli-skiing trips. Table 3-4 and Table 3-5 demonstrate the use pattern over all the units permitted for 2001 through 2003. More than one unit was typically used during any one day of heli-skiing. Appendix G summarizes use patterns in more detail.

Table 3-3 Chugach Powder Guides Past Use 2001-2003

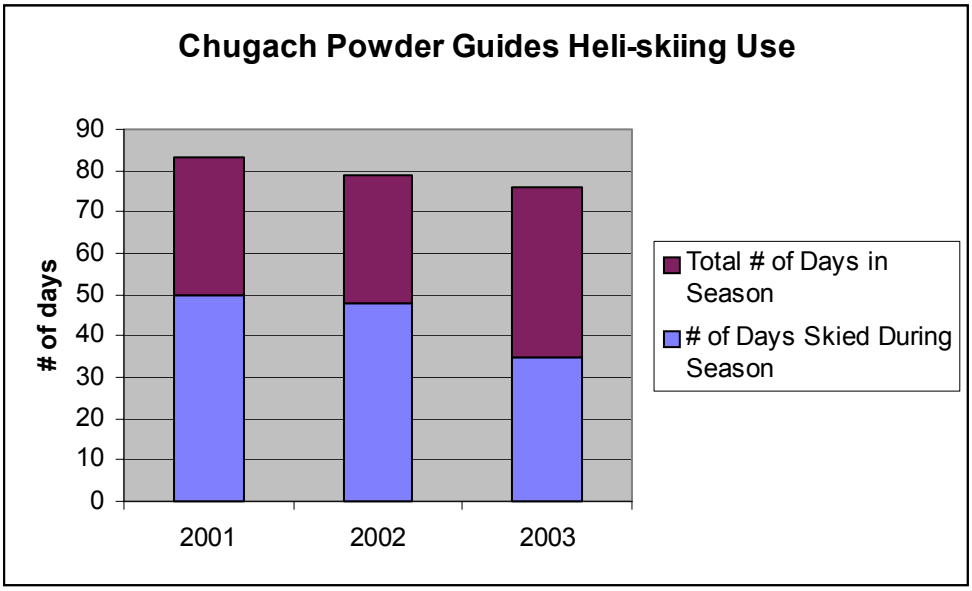
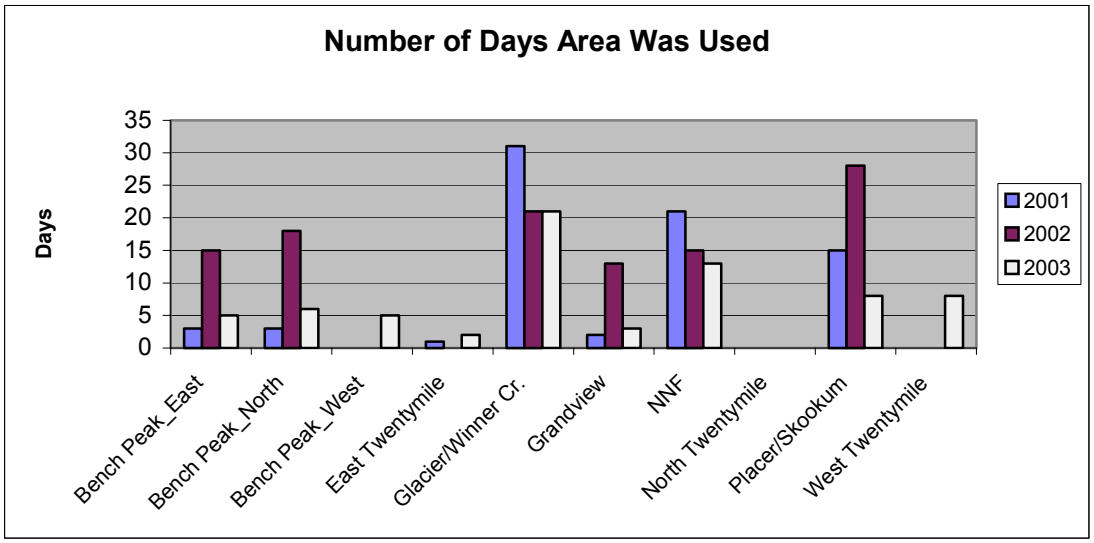


Table 3-4 Past Use of Heli-skiing units 2001-2003.



In general the Glacier/Winner Creek and Placer/Skookum units were consistently used more times in the season than any of the other units. Some units such as Bench Peak East and Bench Peak North were not used as often as Glacier/Winner Creek but when use occurred, the area was used heavily for that day.

Table 3-5 Average number of times ski runs were used

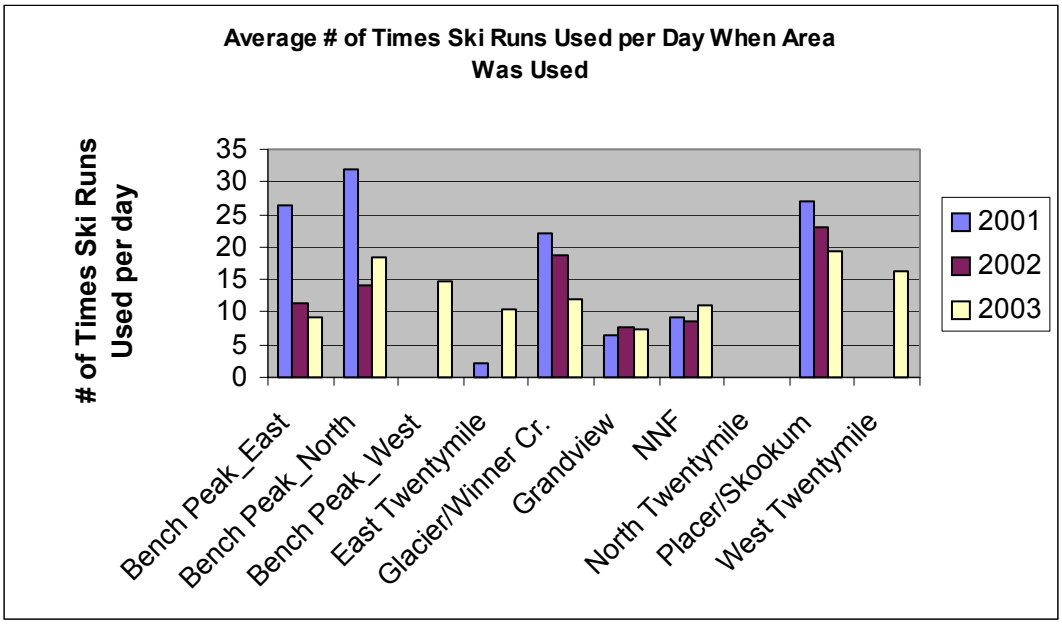
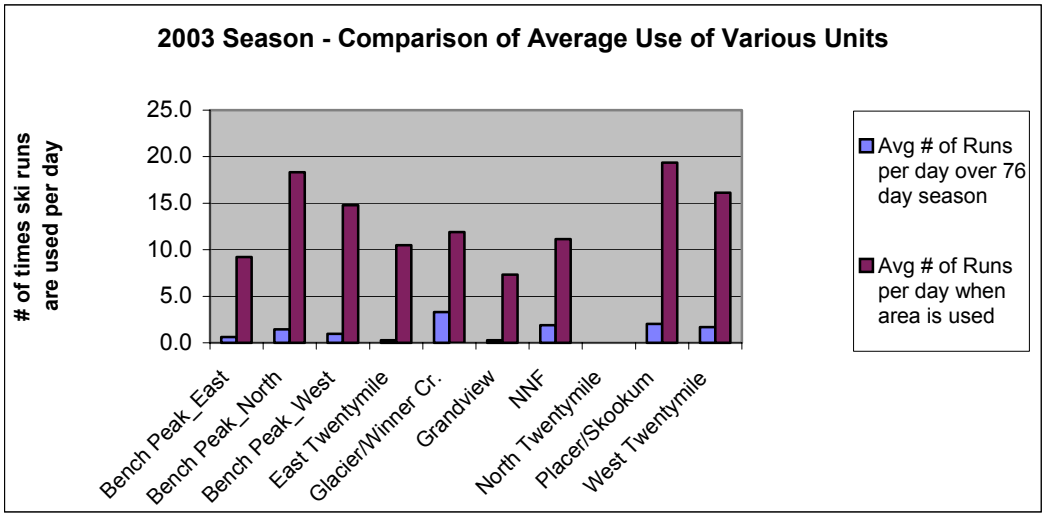


Table 3-6 shows a comparison for the 2003 season between average numbers of runs made in each unit over an entire season (includes those days when CPG is not using the unit) and the average numbers of runs completed in a day for just those days when CPG is using the unit. The table demonstrates that the likelihood of CPG using any one area on any given day during the season is fairly low. However, for those days that CPG is using an area, their use may be fairly high. The high use days are also likely to correspond with nice weather days when other non-guided recreationists also want to use some of the same areas.

Table 3-6 2003 Season – Comparison of Average Use of Various Units



Conflict Between Users

Conflict is defined as “to be at variance, clash, to struggle, or contend”. Conflicts can occur among different user groups, among different users within the same user group, and as a result of factors not related to recreation user activities at all. Activity style, focus of trip, expectations, attitudes toward and perceptions of the environment, level of tolerance for others, and different norms held by different users are related to user conflicts. User conflicts develop when a recreation user fails to achieve the experience desired from the trip and determined that it is due to someone else’s behavior (Moore 1994).

The main user conflict existing in most areas open for motorized use is between motorized snowmachine users and non-motorized users. This conflict will not be addressed in this document, as it does not pertain to the issues at hand except when analyzing cumulative effects of adding another different motorized activity into an area where user conflicts already exist.

From the scoping comments the Forest Service received, the backcountry skiers were concerned with heli-skiing activities diminishing their backcountry skiing experience particularly in areas closer to the road system. The only public comments from people whom use snow-machines were about safety (heli-skiers creating avalanches above them) and concern regarding additional snowmachine area closures. A small number of people use snowmachines to access backcountry areas and then participate in backcountry skiing once at these more remote locations. These users may be more likely to experience user conflicts with heli-skiing due to an expectation of fewer skiers because of the distance they have traveled from the road system.

Members of the public commented that they would experience (or have experienced) some or all elements of the above described user conflict in the following areas proposed by Chugach Powder Guides:

- Glacier/Winner (potential noise impacts by flight path)
- West Seattle Creek (potential noise impacts), East Seattle Creek
- Placer/Skookum (potential noise impacts from flight path from staging area)
- West Bench Peak, North Bench Peak
- Mt. Ascension

Regional and Community Descriptions

Kenai Peninsula Borough

According to the Alaska Department of Community and Economic Development (2003a) and Fried and Windisch-Cole (1999), the Kenai Peninsula Borough is one of the most thriving areas of Alaska. Southcentral Alaska is the most populated and fastest growing region of the state, and the Kenai Peninsula Borough is accordingly growing quickly. Its estimated 2001 population of 50,066 ranked fourth among the Alaska boroughs and census areas (US Bureau of Economic Analysis 2003). Between 1990 and 2000 the population in the borough grew by nearly 22 percent.

In 2000, Alaska Natives alone or in combination with one or more races comprised about 10 percent of the population (US Bureau of the Census 2000). The median age of borough residents is 36 years. Eleven percent of residents had not completed a high school education. The median household income was $46,400; per capita income was $20,950; and 10 percent of residents were living below the poverty level. Unemployment stood at 11 percent, with about 44 percent of the adults not working. The unemployment rate is higher than the statewide average. About 10 percent of households receive some form of public assistance. Borough residents show a relatively low dependence upon wild-food subsistence use in comparison to others areas of the state (Alaska Department of Community and Economic Development 2003a). Demographic characteristics (including median household and per capita income) cited above and in the following community descriptions have been compiled using US Bureau of Census data from the 2000 census and as referenced by the State of Alaska. It should be noted that this data was derived from samples of households rather than true censuses of all households in a community. Especially in the case of small communities some unreported sampling error is likely present in the reported estimates.

While the population of the Kenai Peninsula Borough is experiencing overall growth it is also relatively “stable” in terms of retaining a high proportion of long-term residents. More than three-fourths of the population (78 percent) has lived in the borough since 1990. Some three-fourths of households are occupied by families (74 percent) and are owner occupied (74 percent).

The economy of the borough is more diverse than many areas of the state (Fried and Windisch-Cole 1999). The foundation of the economy includes fishing, tourism, oil and gas, refining, and government. The economic base of the borough has declined two percent since 1995, with drops in the demand for seafood and wood products contributing to the overall decline. Government employment provides some stability to the economy.

Partially offsetting these decreases has been the rather steady growth in tourism statewide. The importance of tourism to the economy of the Kenai Peninsula is significant. A number of major cruise ship lines regularly dock large tour ships throughout the summer months in Seward (and will soon return to Whittier), annually sending tens of thousands of visitors traveling through the Peninsula to Anchorage to view wildlife and scenery. Some small businesses in communities such as Girdwood, Cooper Landing, and Seward receive and are able to capture some of the tourism

expenditures, primarily for adventure-based activities. Winter tourism demand is far less developed as an out-of-state attraction. Public lands, including the Chugach National Forest, Kenai National Wildlife Refuge, Kenai Fjords National Park, and Kachemak Bay State Park, are largely roadless tracts, serving to effectively limit direct highway access to many areas although motorized access by snowmachine is generally guaranteed by public law.

Cooper Landing

An unincorporated community, Cooper Landing, lies at the west end of Kenai Lake on a stretch of the Sterling Highway, 30 miles northwest of Seward in the Chugach Mountains. The Sterling Highway provides access to Anchorage and beyond. Kenai offers air transportation and docking facilities. A privately owned boat launch is available. The State-owned Quartz Creek Airport provides a 2,200-foot gravel runway, and floatplanes may land at Cooper Lake.

The U.S. Geological Survey first recorded Cooper Landing in 1898. The Riddiford Post Office began operations in 1924, and the Riddiford School opened in 1928. In 1938, a road was constructed to Seward. In 1948, a road to Kenai was opened, and by 1951, residents could drive to Anchorage. The Cooper Landing Community Club was first formed in 1949. The Cooper Lake Hydroelectric Facility was constructed in 1959-60.

Currently, 4.9 percent of the community's estimated 375 residents in 2002 are Alaska Native or part Native (Alaska Department of Community and Economic Development 2003b). The Cooper Landing Community Club is involved extensively in local development issues and is an advocate for residents' concerns. The population of the area nearly doubles each summer to support tourism businesses and activities, and tourism and services provide the majority of employment. The 70-room Kenai Princess Lodge accommodates Princess cruise ship passengers and other visitors. Four residents hold commercial fishing permits.

During the 2000 census, there were 379 total housing units, and 217 were vacant. One hundred eighty-four of these vacant housing units are used only seasonally. One hundred fifty-nine residents were employed. There was no unemployment, although 44 percent of all adults were not in the work force. The median household income was $34,840; per capita income was $24,800; and two percent of residents were living below the poverty level. Cooper Landing's population is neither low income nor minority in terms of environmental justice concerns. The community was not included in ANCSA (Alaska Native Claims Settlement Act) and is not federally recognized as a Native village. However, members of the federally recognized Kenaitze Tribe historically inhabiting the area still reside throughout the Kenai Peninsula.

Girdwood

Girdwood is located on Turnagain Arm, within the Municipality of Anchorage, 35 miles southwest of downtown Anchorage. Access to the area is by the Seward Highway. The Chugach State Park and Chugach National Forest border Girdwood on three sides. Girdwood has an airstrip and the Alaska Railroad provides daily train service in the summer. Nearby Anchorage provides a number of transportation options.

In 1951, the Seward Highway was completed, linking Anchorage to the Kenai Peninsula. The City of Girdwood was formed during the 1960s, but the community was unified with

the City of Anchorage and the Greater Anchorage Area Borough in 1975.

Residents of this community, estimated to number 1,817 in 2002, enjoy a rural lifestyle (Alaska Department of Community and Economic Development 2003b).

Girdwood is home to the Alyeska Ski Resort. Anchorage and Kenai residents frequent it during winter months, and tourists during summer months. Four hundred thirty-six of these vacant housing units are used only seasonally. Girdwood's population is neither low income nor minority in terms of environmental justice concerns. The community was not included in ANCSA and is not federally recognized as a Native village.

Hope and Sunrise

Hope is a small, unincorporated community of an estimated 155 residents in 2002 and is located on the southern shore of Turnagain Arm near the mouth of Resurrection Creek (Alaska Department of Community and Economic Development 2003). Hope is accessible from the Seward Highway. A State-owned 2,000' gravel airstrip is available. Both nearby Anchorage and Kenai offer a variety of transportation services.

Hope was established in 1896 as a mining camp and some limited mining still occurs. Currently, however, Hope has limited economic opportunities (Crone et al. 2002). The school and local retail businesses provide the only employment in Hope (Alaska Department of Community and Economic Development 2003b). The community uses a small sawmill. Two residents hold a commercial fishing permit.

The population of Hope has declined nearly 18 percent since 1990. During the 2000 U.S. Census, there were 175 total housing units, and 98 were vacant level (Alaska Department of Community and Economic Development 2003b). Of these vacant housing units, 84 are used only seasonally. Thirty-nine residents were employed. The unemployment rate at that time was 13 percent although 60 percent of all adults were not in the work force. The median household income was $21,790; per capita income was $9,080; and 12 percent of residents were living below the poverty.

The demographic characteristics suggest that Hope could not be classified as a low income or minority population for environmental justice concerns. It does, nevertheless, have one of the area's lowest income levels. Neither Hope nor Sunrise was included in ANCSA and they are not federally recognized as Native villages.

Sunrise is an even smaller, unincorporated community of an estimated 13 residents in 2002 and is located seven miles southeast of Hope. Sunrise is accessible by the Hope Road off the Seward Highway. A gravel airstrip is available nearby, at Hope. Both Anchorage and Kenai are accessible by road, and offer a variety of transportation services. This community dates back to the 1890s when it also was home to miners, and some mining still occurs in the area (Alaska Department of Community and Economic Development 2003b).

The 2000 census data concerning Sunrise residents are suspect due to rather small sampling size and undoubtedly are not representative of all residents. No data from the 1990 census is available for Sunrise. For this reason, little further description of Sunrise

is provided.

Moose Pass

Unincorporated, Moose Pass is located 26 miles north of Seward on the Kenai Peninsula. It is on the southwest shore of Upper Trail Lake, off the Seward Highway, at mile 29.3 of the Alaska Railroad. The community was first named in 1912 as a station on the Alaska Railroad. A post office was established in 1928.

The estimated population of Moose Pass in 2002 was 216 (Alaska Department of Community and Economic Development 2003b). Alaska Natives or part Natives make up about 11 percent of the population. During the 2000 U.S. Census, there were 119 total housing units, and 35 were vacant. Nineteen of these vacant housing units are used only seasonally. Ninety-seven residents were employed. The unemployment rate at that time was 0 percent, although 31 percent of all adults were not in the work force. The median household income was $87,290; per capita income was $28,150; and no residents were living below the poverty level.

The demographic characteristics suggest that Moose Pass could not be classified as a low income or minority population for environmental justice concerns. Moose Pass was not included in ANCSA and is not federally recognized as Native village.

The State Division of Forestry and local businesses provide most employment. The community is not within an easy commute of either Seward or Kenai. Two residents hold commercial fishing permits.

The Seward and Sterling Highways provide access to Anchorage. Nearby Seward offers an airport, railroad, harbor/dock facilities and State Ferry access. A floatplane base is available at Summit Lake.

Seward

Seward is a home rule city situated on Resurrection Bay on the east coast of the Kenai Peninsula, 125 highway miles south of Anchorage. It lies at the foot of Mount Marathon, and is the gateway to the Kenai Fjords National Park.

In 1903, a group of settlers arrived to begin construction of a railroad. Seward became an incorporated city in 1912. The Alaska Railroad was constructed between 1915 and 1923, and Seward developed as the ocean terminus and supply center. By 1960, Seward was the largest community on the Peninsula. Tsunamis generated after the 1964 earthquake destroyed the railroad terminal and killed several residents. As an ice-free harbor, Seward has become an important supply center for Interior Alaska. The population of Seward in 2002 was estimated to be 2,794 (Alaska Department of Community and Economic Development 2003b).

As the southern terminus for the Alaska Railroad and road link to Anchorage and the Interior, Seward has long been a transportation center. The economy has diversified with tourism, commercial fishing, ship services and repairs, oil and gas development, a coal export facility for Usibelli Mine, Alaska Vocational Technical Center, a State Prison, and the University of Alaska's Institute of Marine Sciences. The Alaska SeaLife Center, the Chugach Heritage Center, the Kenai Fjords National Park including the adjacent Exit Glacier area, and the Mt. Marathon Race and Fourth of July festivities attract visitors.

Over 320,000 cruise ship passengers visit Seward annually. Eighty residents hold commercial fishing permits.

The Seward Highway connects Steward to the Alaska Highway. Daily air services and charters are available at the State-owned airport. Two paved runways are utilized, at 4,240 and 2,300 feet. The Port serves cruise ships, the State Ferry, cargo barges and ocean freighters from Seattle and overseas. The small boat harbor has moorage for 650 boats, and two boats launch ramps. The Alaska Railroad provides over 1.4 billion pounds of cargo transit each year, importing cargo for the Interior and exporting coal to the Pacific Rim. A new railroad depot was completed in the fall of 1997.

Seward is primarily a non-Native community, although 20.9 percent of the population are Alaska Native or part Native and the Mount Marathon Indians are very active within the community. During the 2000 U.S. Census, there were 1,058 total housing units, and 141 were vacant. Sixty-three of these vacant housing units are used only seasonally. Some 1,011 residents were employed. The unemployment rate at that time was 17 percent, although 55 percent of all adults were not in the work force. The median household income was $44,310; per capita income was $20,360; and 11 percent of residents were living below the poverty level.

The demographic characteristics suggest that Seward could not be classified as a low income or minority population for environmental justice concerns. Seward is not included in ANCSA and is not federally recognized as a Native village.

COMMUNITY ATTITUDES AND BELIEFS

Some additional insight into the attitudes and beliefs of residents of potentially affected communities towards helicopter skiing may be found in the results of previous social research. Alaska Pacific University (APU) conducted random mail surveys of residents in 12 communities surrounding the Chugach National Forest, including Anchorage, Cooper Landing, Cordova, Girdwood, Hope, Kenai, Moose Pass, Seward, Soldotna, Sterling, Valdez, and Whittier in 1998 and 1999 (Crone et al. 2002).

In 1998, responses from more than 750 residents were received regarding participation in Forest planning, the values of the Chugach National Forest, support or opposition to both general forest uses, and specific projected management issues. In 1999, a second survey yielded responses from over 500 residents in the same communities. This survey asked questions designed to rank the importance of and satisfaction with selected quality of life measures, as well as perceptions and preferences for change. Response rates for the two surveys were 32 percent and 24 percent respectively.

These survey results provide some recent anecdotal insight into the attitudes and beliefs of residents of potentially affected communities, including how they might view the proposed helicopter skiing activity today.

Forest Values

The first (1998) APU survey asked residents to indicate how important they felt each of 13 different forest ecosystem values were to them personally. The 13 ecosystem values included: aesthetic, biological diversity, cultural, economic, future, historic, intrinsic,

learning, life support, recreation, spiritual, subsistence, and therapeutic. The survey posed the question in terms of the percent of a hypothetical sum of money a resident would allocate to each value in order to ensure that the value would be retained as a result of the forest plan then in progress. The following summarize the results of three relevant values—aesthetic, recreation, and economic—among the five communities of Cooper Landing, Girdwood, Hope, Moose Pass, and Seward. (For purposes of comparison in the following discussions, had each of the 13 ecosystem values been considered of equal importance they would have received approximately 7.7 percent. Percent values greater than 7.7 percent suggest that a value is more important than if the value was viewed equal to all or others. Similarly, percent values less than 7.7 suggest that a value is less important than if the value was viewed equal to all or others.)

Recreation Value

Recreation value was defined in the survey as, "I value the forest because it provides a place for my favorite outdoor recreation activities." Among all respondents in the 12 communities recreation value was the highest rated value (14.9 percent). However, among the six potentially affected communities recreation value was never the highest rated value. Cooper Landing residents rated it highest (13.4 percent), followed by Moose Pass (13.1 percent), Seward (12.9 percent), Girdwood (12.8 percent), and Hope (8.1 percent). The highest rating for recreation value was found among residents of Sterling (20.9 percent) and the lowest in Hope.

Aesthetic Value

Aesthetic value was defined in the survey as, "I value the forest because I enjoy the forest scenery, sights, sounds, smells, etc." Aesthetic value ranked third (12.4 percent) behind recreation and life support (13.5 percent) among residents of all communities. Among the six communities, aesthetic value was most important to residents of Moose Pass (15.1 percent). Other community responses (in order of aesthetic value importance) were as follows: Seward (13.1 percent), Girdwood (12.7 percent), and Cooper Landing and Hope. The highest rating for aesthetic value among all twelve communities was found among Moose Pass residents. Sterling (10.4 percent) had the lowest aesthetic value rating.

Economic Value

Economic value was defined in the survey as, "I value the forest because it provides timber, fisheries, minerals, or tourism opportunities such as outfitting and guiding." Among the six potentially affected communities, economic value was most important to Cooper Landing residents (8.2 percent) and least important to residents of Moose Pass (5.5 percent). Other community responses (in order of economic value importance) were as follows: Hope (7.5 percent), Seward (7.0 percent), and Girdwood (6.1 percent). Whittier and Moose Pass represented, respectively, the highest and lowest values among the 12 communities surveyed.

In the five potentially affected communities, either aesthetic or recreation value is generally considered more important than economic value to most residents, although all three values were generally among the more important values of the Forest. Because the survey did not ask residents to evaluate any parings of values, nor were specific contexts for choices mentioned, it is not possible to definitively argue that one value

necessarily “trumps” another value for residents. The results would, however, tend to suggest that local residents are aware of and appreciate certain non-economic amenities of the Forest.

Community Preferences for Selected Forest Uses

The 1998 APU survey described 20 general forest uses (without specific temporal or spatial context other than somewhere in the Forest) and asked respondents to indicate whether they “favored” or “opposed” the uses in general (measured on a 5-point Likert scale ranging from 5.0, “strongly favor,” to 1.0, or “strongly oppose” with 3.0 indicating neutral). The following summarize survey results for several relevant general forest uses among the five communities of Cooper Landing, Girdwood, Hope, Moose Pass, and Seward.

Commercial Tourism

Support for commercial tourism was fairly consistent among residents. Of the 12 communities surveyed, residents of Girdwood and Whittier were most in favor of unspecified commercial tourism activities (3.4), followed by Cooper Landing and Moose Pass (3.3), and Hope and Seward (3.2). (None of the 12 communities had a mean response lower than 3.0.)

Commercial Outfitting and Guiding

Of the 12 communities, residents of Whittier (3.6) expressed the most support for commercial outfitting and guiding services. Girdwood residents (3.4) were less supportive, as were Cooper Landing, Moose Pass, and Seward (3.2). Hope residents (3.0) were generally split in their opinions.

Motorized Recreation

Of the five communities, residents of Moose Pass (3.3) most favored motorized recreation activities in general, followed by Seward (3.1), Cooper Landing, Hope, (3.0), and Girdwood (2.9, and the least supportive of all twelve communities).

Helicopter Skiing and Hiking

Support for helicopter skiing and hiking among all communities was generally mixed. Of the 12 communities surveyed, respondents in Moose Pass and Hope were most opposed to helicopter skiing and hiking (2.8), followed closely by Cooper Landing (2.9). Residents of Girdwood were most in favor (3.5). Other results included Seward (3.1).

Non-motorized Recreation: Residents of all 12 communities generally favored non-motorized recreation activities more than motorized recreation activities, with the following levels of support: Cooper Landing and Girdwood, 4.5; Seward, 4.4; Hope, 4.3; and Moose Pass, 4.2

The survey results suggest several points. First, support for commercial tourism and outfitting activities in general appeared somewhat marginal in 1998 among residents of the 12 communities overall. In general, Girdwood and Whittier residents were perhaps more in favor of such activities than those of other communities, especially Hope and Seward. Second, support among residents for both commercial activities and motorized recreation did not necessarily transfer over to support for helicopter skiing and hiking.

Third, support for non-motorized recreation appears stronger than support for motorized recreation.

Quality of Life Factors

The 1999 APU survey described 30 generic factors thought to influence one's quality of life in a community surrounding the Forest. In addition, the survey also posed a similar question in terms of 20 similar, but public land management related factors. Respondents were asked to indicate how "important" each factor was in general (measured on a 4-point Likert scale ranging from 1.0, "extremely important," to 4.0, or "not at all important" with 2.5 indicating neutral). Respondents were asked to indicate how "satisfied" they were with each factor in general (measured on a 5-point Likert scale ranging from 1.0, "very satisfied," to 5.0, or "very unsatisfied" with 3.0 indicating neutral). The following summarize survey results for several selected, relevant quality of life factors among the five communities of Cooper Landing, Girdwood, Hope, Moose Pass, and Seward.

Beauty of the Surrounding Area

"Beauty of the surrounding area" was considered to be the most important factor in a resident's sense of what contributes to quality of life in their community. It was only slightly more important (1.2) to residents of Cooper Landing, Girdwood, Moose Pass, and Seward than to residents of Hope. In general, the importance of the beauty of the surrounding areas was more important to residents of the six potentially affected communities than it was to those of the other six communities surveyed.

Residents of the five potentially affected communities expressed high levels of satisfaction with the beauty of the surrounding area: Cooper Landing (1.1), Moose Pass (1.2), Girdwood, Hope, and Seward (1.3).

Access and Use of Nearby Public Lands

Of the 30 generic factors, "access and use of nearby public lands" was among the top five most important factors in all six of the potentially affected communities, following other factors such as beauty of the surrounding area, clean air and water, local recreational trails, and open and undeveloped areas. Importance ratings for the communities were as follows: Cooper Landing, Girdwood, Hope, Moose Pass, and Seward (1.8).

In general, residents of the five potentially affected communities expressed lower levels of satisfaction with access and use of nearby public lands than with the beauty of the surrounding area: Hope (1.8), Girdwood and Moose Pass (2.0), and Cooper Landing (2.1), Seward (2.5).

Job and Employment Opportunities

"Job and employment opportunities" ranked below both "beauty of the surrounding area" and "access and use of nearby public lands" in terms of contribution to quality of life, but still within the top third of factors: Whittier (1.5), Seward (1.7), Girdwood (2.3), Moose Pass (2.4), Cooper Landing (2.5), and Hope (3.2).

Residents of the five potentially affected communities expressed higher levels of

dissatisfaction with current job and employment opportunities than for a large number of quality of life factors, including beauty of the surrounding area and access and use of nearby public lands: Girdwood and Seward (2.7), Moose Pass (3.0), and Cooper Landing and Hope (3.1).

These results suggest that while residents place very high importance on environmental and access amenities in their communities, they also expressed significant dissatisfaction with current job and employment opportunities. It may not necessarily follow from these results however, that any given circumstantial trade-off preference for the factors is a foregone conclusion.

Preferences for Change in Local Economic Sectors

The 1999 survey asked residents to comment on their preferences for increased or decreased activity in 12 broad categories of local economic sectors, including forestry/forest products, mining, commercial fishing, and tourism services among.

In general, the number of residents expressing an interest in seeing some level of increase in "tourism services" as a component of their local economy exceeded those desiring a decrease: Whittier (83 percent for an "increase" to 6 percent for a "decrease"), Girdwood (44 percent to 13 percent), Hope (38 percent to 6 percent), Moose Pass (38 percent to 14 percent), and Cooper Landing (35 percent to 6 percent). Only in Seward did a preference for decreased tourism activity (32 percent) exceed the preference for increased tourism activity (24 percent).

Most residents of the six potentially affected communities reported an interest in a wide array of some level of increased economic activity, with the notable exception of government. Tourism generally was more supported than other economic activities such as mining and forestry. The most universally desired sector for new economic activity were service industries

Changes in Desirability of Community

The 1999 survey also queried residents about their perception of change in the quality of life in their communities, specifically, had the communities become more or less desirable since they have lived there. Communities where more residents felt that the quality of life had increased than decreased include Hope (47 percent "increased" to 18 percent "decreased"), Cooper Landing (33 percent to 24 percent), and Girdwood (33 percent to 31 percent). Communities where more residents felt that the quality of life had decreased than increased include Whittier (5 percent "increased" to 53 percent "decreased") and Seward (33 percent to 45 percent). An equal proportion of Moose Pass residents (29 percent) felt that the quality of life in their community had either increased as had felt it had decreased.

Self-Rated Quality of Life

Finally, the 1999 survey asked respondents to summarily rate the quality of life in their community on a 7-point Likert scale ranging from 7.0 ("very positive") to 1.0 ("very negative"), with a neutral rating of 3.5. Residents of Girdwood (5.7) were the most positive about the quality of life in their community, with residents of Whittier (4.0) the least positive. Both scores represented the highest and lowest score among all 12

communities. Other summary quality of life scores were Cooper Landing (5.6), Moose Pass (5.5), Hope (5.2), and Seward (4.9).

Survey Summaries

Crone et al (2002) summarized the findings of the 1998 survey as follows:

- A significant portion of the public is interested in how the Chugach National Forest is managed and wishes to be involved as a partner in its planning.
- Major conceptual changes to the current forest management situation are probably not warranted, although some specific changes appear to be desired.
- Community residents appreciate the amenity values, such as recreation, life support, and aesthetic values of Chugach National Forest more than the commodity values traditionally examined in forest planning.

Similarly, Crone et al (2002) summarized the findings of the 1999 survey:

- In most communities, respondents felt that local community interests should be given more attention than national interest in public land use planning near their community.
- The quality of life in Chugach National Forest communities of interest is heavily influenced by factors that are related to public lands or affected by public land management activities.
- In most communities, survey respondents favored the current amount of economic activity in the sectors most associated with forest resources.
- Whittier, Kenai, Anchorage, and Valdez seem the most in favor of additional growth in their communities, whereas Hope, Cooper Landing, Girdwood, and
- Moose Pass seems the least in favor of additional growth.
- The quality of life and community resiliency of the Chugach National Forest communities of interest is generally high, although the community of Whittier had both the lowest quality of life ranking and the lowest community resiliency score.

Air Quality

Much of the Kenai Peninsula lies within the Cook Inlet Interstate Air Quality Region and is classified as Class II under the Clear Air Act. Air quality is temporarily lowered by vehicle emissions, dust, contaminations from urban communities, and burning from wildfires and prescribed fires. All areas of the Forest are currently in compliance with National Ambient Air Quality Standards (USDA-Forest Service 2003b).

Soil and Water Resources

While fueling helicopters there may be some slight spillage of fuel onto the ground. There is also a very slight risk of a major spill from fueling operations or from an accident involving the fuel truck. CPG would have standard fuel spill prevention, containment, and cleanup materials on hand at any fueling site and would maintain and follow a spill plan that includes spill prevention, containment, cleanup, and notification procedures. If fueling takes place within 50 feet of a wetland or water body, the fuel tank would be located within an impermeable containment basin.

Roadless Areas

All of the proposed permit area is within inventoried roadless areas. None of the areas proposed for heli-skiing have been recommended for inclusion in the National Wilderness System (USDA-Forest Service, 2002b). All of the areas proposed for heli-skiing are "Open to All Motorized Uses" in the winter (December 1 through April 30) through decisions made in the Revised Forest Plan (USDA-Forest Service 2002a). The exception to this is in the Skookum Glacier area, which is closed after March 31 to all motorized use.

Wild and Scenic Rivers

Three of the proposed helicopter skiing units are within areas recommended to be included in the National Wild and Scenic River System (USDA-Forest Service, 2002a). The Twentymile River, recommend for Scenic classification, is within the West Twentymile unit (1,100 acres) and East Twentymile (400 acres). The East Fork of Sixmile Creek, recommended for Recreational classification, is within the West Bench Peak unit (100 acres). The upper Snow River, recommended for Wild classification, is within the Snow River unit (900 acres) and East Ptarmigan. All of these areas are available for winter motorized use (USDA-Forest Service, 2002a).